

Notice of Allowability

Application No.

09/609,106

Examiner

Samuel Broda

Applicant(s)

ROCKWOOD ET AL.

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicants' Request for Reconsideration dated 14 September 2004.
2. ☒ The allowed claim(s) is/are 1-11 and 13-15.
3. ☒ The drawings filed on 14 September 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 14 September 2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.



**SAMUEL BRODA, ESQ.
PRIMARY EXAMINER**

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1. This communication is in response to Applicants' Request for Reconsideration dated 14 September 2004, including an Information Disclosure Statement. Claims 1-11 and 13-15 are pending.

Withdrawal of Rejection Under Section 112, First Paragraph

2. The combination of Applicants' arguments and the Mann et al reference supplied in the Information Disclosure Statement are sufficient to remove the rejection under Section 112, first paragraph.

Examiner's Amendment

3.1 An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicants, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this Examiner's amendment was given in a telephone conversation with Mr. Dirk Brinkman, Reg. No. 35,460, on 21 October 2004.

3.2 The application has been amended as follows:
In Claim 8, line 1, change:

“The method of claim 8”

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to:

--The method of claim 1--.

In Claim 13, line 1, change:

“The method of claim 12”

to:

--The method of claim 1--.

In Claim 14, line 1, change:

“The method of claim 12”

to:

--The method of claim 1--.

Reasons for Allowance

4. The following is an Examiner’s statement of reasons for the indication of allowable subject matter:

The closest prior art of record shows:

(1) an application of geometric algebra to a kinematic problem of a robot (Li, “Some Applications of Clifford Algebra to Geometries”);

(2) an application of Clifford algebra to model the movement of a parallel robot (Mourrain et al, “Applications of Clifford Algebras in Robotics”); and

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(3) the “Geometric Algebra Learning Environment” package in Matlab (Mann et al, “The Making of a Geometric Algebra Package in Matlab”).

4.1 Applicants’ set of claims consists of claims 1-11 and 13-15.

Independent claim 1 is directed to a method for modeling a moving object composed of one or more objects. This claim identifies the distinct steps of: “associating a plurality of general homogeneous operators with each component to generate a model of the object” and “determining a motion of the object by a time dependent displacement versor $D=D(t)$ satisfying a differential equation $D\text{-dot} = \frac{1}{2} VD$, with “screw velocity” V given by $V = -I\omega + ev$, where ω is a velocity and v is a rotational translational velocity of the object, wherein the object is a rigid body”.

Because the closest prior art does not appear to teach or suggest the combination of associating a plurality of general homogeneous operators with each component to generate a model of an object and determining a motion of the object by a time dependent displacement versor, claims 1-11 and 13-15 are deemed allowable.

5. Any comments considered necessary by Applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

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6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Samuel Broda, whose current telephone number is (571) 272-3709. The Examiner can normally be reached on Mondays through Fridays from 8:00 AM – 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, currently can be reached at (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (703) 305-3900.



SAMUEL BRODA, ESQ.
PRIMARY EXAMINER